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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,259	12/16/2004	Peter A Lewis	GB 020102	6686

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EXAMINER

HU, RUI MENG

ART UNIT

PAPER NUMBER

2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/518,259

Applicant(s)

LEWIS, PETER A

Examiner

RuiMeng Hu

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 6-11, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/15/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement submitted on 12/15/2005 been considered by the Examiner and made of record in the application file.

Drawings

3. The drawings are objected to because of failed to label each feature descriptively.

Claim Objections

4. **Claims 6-11, 15-16** are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claims 1-5, 12-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nokes (EP 1043874)** in view of **Popper et al. (US PGPub 2002/0176524)**.

Consider **claim 1**, Nokes clearly discloses a digital receiver arrangement (paragraph 0008, figure 4) comprising a tuner/demodulator circuit (tuner 34) and analogue-to-digital converting means (ADC 36), means (paragraph 0015) for determining if an interference impulse is present in a received signal.

However, Nokes fails to disclose means for storing an impulse wavelet representation means for introducing the stored representation of the impulse wavelet to the detected received impulse so as to counteract the effect thereof within the received signal.

In the same field of endeavor, Popper et al. clearly disclose a noise reduction digital receiver comprising means (Abstract, paragraph 0083, figure 5, storage 200) for storing an impulse wavelet representation, means (paragraph 0080, figure 5, subtractor 21) for introducing the stored representation of the impulse wavelet to the detected received impulse so as to counteract the effect thereof within the received signal.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the selection technique taught by Popper et al. into the art of Nokes as to provide an alternative way to efficiently remove impulsive noise in a received digital signal.

Consider **claim 2 as applied to claim 1**, Nokes as modified by Popper et al. clearly discloses wherein the means for determining if an impulse arises comprises comparison means for comparing the stored impulse wavelet with a wavelet arising in the received signal (paragraph 0015, Nokes clearly discloses comparing the received signal with thresholds as to determine if an impulse noise presents, after as being modified by Popper et al. said thresholds could be replaced by the stored impulse noise samples, and a comparing means would be carried out to comparing the received wavelet signal with said stored impulse noise samples as to determine if an impulse noise presents (i.e. an impulse noise presents when the received wavelet signal matches the stored impulse noise samples), and subtract the stored impulse noise sample from the received wavelet signal as to remove the received impulse noise, therefore it would have been obvious to a ordinary skilled person in the art to include the comparing means as to efficiently remove impulse noises).

Consider **claim 3 as applied to claim 2**, Nokes as modified by Popper et al. fails to disclose wherein the comparison means comprises a cross-correlator. However, official notice is taken, the property of a cross-correlator is well known in the art as to compare two or more signal samples, therefore it would have been obvious to a ordinary skilled person in the art to include a cross-correlator to compare the received

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wavelet signal with the stored impulse noise sample as to determine accurately if an impulse noise presents.

Consider **claim 4 as applied to claim 2**, Nokes as modified by Popper et al. clearly discloses wherein the comparison means includes optimal filtering means (paragraph 0015, comparing the received wavelet signal with the stored impulse noise samples and output a decision could be considered as an optimal filtering means).

Consider **claim 5 as applied to any one of claims 1-4**, Nokes as modified by Popper et al. fails to disclose wherein the means for introducing the stored representation to the received signal includes subtractor means for subtracting the stored wavelet representation from the incoming impulse wavelet.

In the same field of endeavor, Popper et al. clearly disclose wherein the means for introducing the stored representation to the received signal includes subtractor means for subtracting the stored wavelet representation from the incoming impulse wavelet (paragraph 0080, figure 5, subtractor 21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the selection technique taught by Popper et al. into the art of Nokes as modified by Popper et al. as to include subtraction means to efficiently remove impulsive noise in a received digital signal.

Consider **claim 12**, Nokes clearly discloses a method of receiving a digital signal including the steps of demodulating the signal (figure 4, tuner 34), and conducting an analogue-to-digital conversion of the signal (figure 4, ADC 36), determining if an

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impulse interference event is found within an incoming signal (paragraph 0015, figure 4, impulse processor 38).

However, Nokes fails to disclose steps of storing an impulse wavelet representation, and introducing the said stored wavelet representation to the received impulse interference event so as to counteract the effect thereof.

In the same field of endeavor, Popper et al. clearly disclose a noise reduction digital receiver with a processing method comprising steps of storing an impulse wavelet representation (Abstract, paragraph 0083, figure 5, storage 200), and introducing the said stored wavelet representation to the received impulse interference event so as to counteract the effect thereof (paragraph 0080, figure 5, subtractor 21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the selection technique taught by Popper et al. into the art of Nokes as to provide an alternative way to efficiently remove impulsive noise in a received digital signal.

Consider **claim 13 as applied to claim 12**, Nokes as modified by Popper et al. clearly discloses wherein the said step of determining includes comparing the stored wavelet representation with a wavelet within the received signal (paragraph 0015, Nokes clearly discloses comparing the received signal with thresholds as to determine if an impulse noise presents, after as being modified by Popper et al. said thresholds could be replaced by the stored impulse noise samples, and a comparing means would be carried out to comparing the received wavelet signal with said stored impulse noise samples as to determine if an impulse noise presents (i.e. an impulse noise presents

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when the received wavelet signal matches the stored impulse noise samples), and subtract the stored impulse noise sample from the received wavelet signal as to remove the received impulse noise, therefore it would have been obvious to a ordinary skilled person in the art to include the comparing means as to efficiently remove impulse noises).

Consider **claim 14 as applied to claim 12 or 13**, Nokes as modified by Popper et al. fails to disclose the step of subtracting the stored wavelet representation from the received impulse interference event.

In the same field of endeavor, Popper et al. clearly disclose the step of subtracting the stored wavelet representation from the received impulse interference event (paragraph 0080, figure 5, subtractor 21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the selection technique taught by Popper et al. into the art of Nokes as modified by Popper et al. as to include subtraction means to efficiently remove impulsive noise in a received digital signal.

Conclusion

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed**

to: Commissioner for Patents
P.O. Box 1450
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Hand-delivered responses should be brought to

Customer Service Window
Randolph Building

401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RuiMeng Hu whose telephone number is 571-270-1105. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571-272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RuiMeng Hu
R.H./rh
January 23, 2007

EDAN ORGAD
PRIMARY PATENT EXAMINER

Edan Orgad 2/5/07